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PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No. Q66892

Haruo ICHIKAWA, et al.

Appln. No. 09/996,974

Group Art Unit: 3652

Confirmation No. 4743

Examiner: Charles A. FOX

Filed: November 30, 2001

For: **METHOD OF AND APPARATUS FOR TRANSFERRING ROLLS, AND ROLL
SUPPLY CARRIAGE**

SUBMISSION OF APPELLANTS' BRIEF ON APPEAL

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an original and two copies of Appellant's Brief on Appeal. A check for the statutory fee of \$330.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: July 26, 2004



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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellants submit that the following comprises the Appellants' Brief on Appeal from the Office Action dated December 30, 2003, wherein claims 1, 3-5 and 7-16 were finally rejected.¹ This Appeal Brief is being filed in triplicate and is accompanied by a Submission which includes the required appeal fee set forth in 37 C.F.R. § 1.17(c). Appellants' Notice of Appeal was filed on May 28, 2004. Therefore, the present Appeal Brief is timely filed.

¹ Rejected claims 3 and 7 were subsequently canceled in Applicants' Amendment Under 37 C.F.R. § 1.116 filed on March 17, 2004.

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

I. REAL PARTY IN INTEREST

The real party in interest is FUJI PHOTO FILM CO., LTD. (Assignee) by virtue of an assignment executed by the inventors (Appellants), on October 25, 2001 and October 26, 2001, and recorded by the Assignment Branch of the U.S. Patent and Trademark Office on November 30, 2001 (at Reel 012339, Frame 0292).

II. RELATED APPEALS AND INTERFERENCES

Appellants state that, upon information and belief, Appellants are not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

The present application was filed on November 30, 2001 with claims 1-16. Claims 1 and 4 were amended and claims 2 and 6 were canceled in the Amendment Under 37 C.F.R. § 1.111 filed on October 16, 2003 in response to the non-final Office Action dated July 16, 2003. Then, claims 1, 4 and 11 were amended and claims 3 and 7 were canceled in the Amendment Under 37 C.F.R. § 1.116 filed on March 17, 2004 in response to the final Office Action dated December 30, 2003. Thereafter, no further amendments have been made to claims 1, 4-5 and 8-16, which are all the claims currently pending in the application. In view of these amendments, claims 1, 4-5 and 8-16 (*see* Appendix) are the claims on appeal.

IV. STATUS OF AMENDMENTS

As noted above, an after-final Amendment (under 37 C.F.R. § 1.116) was filed on March 17, 2004. For purposes of this appeal, the Amendment will be entered (*see* Advisory Action dated April 22, 2004).

V. SUMMARY OF THE INVENTION

Illustrative embodiments of the present invention relate to a method of transferring a roll and an apparatus for transferring a roll held on a roll supply carriage, as well as the roll supply carriage (Appellants' specification: page 1, lines 5-9; *see also* claims 1, 4-5 and 8-16).

Manufacturing photographic films of photosensitive material requires a number of processes including (1) a process of producing a wide elongated sheet-like film, (2) a process of winding the sheet-like film into a roll and (3) a process of cutting the roll into strips and accommodating the strips in cases (Appellants' specification: page 1, lines 10-18). These processes are generally performed on different production lines, with intermediate products being required to be fed in a light-shielded fashion between the processes (*Id.*).

Illustrative embodiments of a method and an apparatus consistent with the present invention are operable to transfer rolls automatically and reliably without human intervention, while preventing the rolls from being skewed during the transfer (Appellants' specification: page 2, lines 11-17).

Additionally, an illustrative embodiment of a roll supply carriage consistent with the present invention has a simple structure and requires no special drive mechanism (Appellants' specification: page 2, line 18 to page 3, line 6). Instead, the roll supply carriage may be operable to supply rolls by being actuated from an apparatus to which the rolls are to be transferred (*Id.*).

Additionally, the roll supply carriage may be operable to selectively hold the rolls in a fixed state and to release the rolls from the fixed state upon being actuated from an apparatus to

which the rolls will be transferred (*Id.*). Furthermore, the roll supply carriage may be operable for easily transferring the rolls of photosensitive material in a bright chamber (*Id.*).

Appellants' Fig. 1 shows an illustrative roll supply carriage 10 for supplying rolls F, which each include a photosensitive material, and an illustrative roll transferring apparatus 14 disposed in a film manufacturing apparatus 12 provided in a dark chamber, for transferring the rolls F from the roll supply carriage 10 into the film manufacturing apparatus 12 (Appellants' specification: page 5, lines 22-27). When the roll supply carriage 10 and the film manufacturing apparatus 12 are coupled to each other, a light-shielded case 24 of the roll supply carriage and outer and inner peripheral walls 80, 82 of the film manufacturing apparatus 12 jointly make up a light-shielding labyrinth structure (Appellants' specification: page 8, lines 9-12).

An illustrative method of transferring the rolls F from the roll supply carriage 10 to a film manufacturing apparatus 12 coupled thereto, includes using a coupling mechanism 170 (*e.g.*, an Oldham's coupling mechanism) on the tip end of a rotatable shaft 156 of the film manufacturing apparatus 12 (Appellants' specification: page 18, line 3 to page 19, line 7).

As shown in Fig. 8, a tip end of a sleeve 176 of the coupling mechanism 170 pushes a plate member 126 disposed on the tip end of a roll retainer shaft 96 of the roll supply carriage 10 (*Id.*). Further movement of sleeve 176 pushes the plate member 126 along an inner circumferential surface of the roll retainer shaft 96, causing fingers 136a, 136b to retract into the roll retainer shaft 96, such that the rolls F are now unlocked from the roll retainer shaft 96 (*Id.*).

When the plate member 126 has been displaced a given distance, an engaging member 112 on the tip end of a ball screw 98, which is coaxially centrally disposed in the roll retainer

shaft 96, is exposed through an opening 128 in the center of the plate member 126 toward the coupling mechanism 170 (Appellants' specification: page 19, lines 8-16; and Fig. 8). In particular, the slide element 174 of the coupling mechanism 170 is positioned near the engaging member 112; however, the slide element 174 and the engaging member 112 are generally not yet in engagement with each other (Appellants' specification: page 19, lines 8-16; and Fig. 11).

Thereafter, a motor 206 of the roll transferring apparatus 14 is energized to cause the rotatable shaft 156 to rotate, which in turn causes the slide element 174 of the coupling mechanism 170 to rotate (Appellants' specification: page 19, lines 17-26). When the slide element has been rotated a certain angle, a groove 182 in the slide element 174 is aligned with the engaging member 112 and receives the engaging member 112 therein (Appellants' specification: page 19, line 26 to page 20, line 2; and Fig. 12).

Upon rotation of the rotatable shaft 156, a roll loading shaft 216 (of the roll transferring apparatus 14) is also rotated (Appellants' specification: page 20, lines 2-7).

When the rotatable shaft 156 is rotated with the engaging member 112 engaged in the groove 182, the engaging member 112 rotates the ball screw 98 within the roll supply carriage 10 (Appellants' specification: page 20, line 24 to page 21, line 5). Rotation of the ball screw 98 causes a moving member 106 to move along the roll retainer shaft 96 toward the roll transferring apparatus 14 (*Id.*). The moving member 106 pushes a core 97 of the roll F closest to a support column 94, thus, displacing the rolls F toward the roll transferring apparatus 14 (*Id.*).

After one roll F has been transferred onto the roll loading shaft 216 of the roll transferring apparatus 14, a second cylinder 164 is actuated to retract the roll loading shaft 216, separating

the roll transferring apparatus 14 and the roll holding mechanism 90 from each other (Appellants' specification: page 22, lines 13-17). Then, a cylinder 151 is actuated to retract the roll transferring apparatus 14 as a whole (Appellants' specification: page 22, lines 17-18; and Fig. 18). Thereafter, a rotary table 146 of the roll transferring apparatus 14 is turned to supply the transferred roll F to a given region in the film manufacturing apparatus 12 (Appellants' specification: page 22, lines 19-21).

After having supplied the transferred roll F to the given region in the film manufacturing apparatus 12, the roll transferring apparatus 14 brings the roll loading shaft 216 into engagement with the roll retainer shaft 96 of the roll holding mechanism 90 for transferring a next roll F (Appellants' specification: page 23, lines 11-15).

Similar operations may be used to return a roll F held by the roll transferring apparatus 14 to the roll supply carriage 10 (Appellants' specification: page 23, line 16 to page 24, line 4).

VI. ISSUES

The issues on appeal are as follows:

1. Whether or not claims 1 and 4 are patentable over U.S. Patent No. 5,466,114 to Swain (hereinafter "Swain") in view of U.S. Patent No. 4,290,734 to Van Breen (hereinafter "Van Breen"), under 35 U.S.C. § 103(a).
2. Whether or not claims 5 and 10 are patentable over Swain and Van Breen, as applied to claim 4, and further in view of U.S. Patent No. 4,953,805 to Rauh (hereinafter "Rauh"), under 35 U.S.C. § 103(a).

3. Whether or not claims 8 and 9 are patentable over Swain and Van Breen, as applied to claim 4, and further in view of U.S. Patent No. 1,907,447 to Schiltz (hereinafter "Schiltz"), under 35 U.S.C. § 103(a).

4. Whether or not claims 11-14 are patentable over U.S. Patent No. 4,557,515 to Read (hereinafter "Read") in view of Swain, under 35 U.S.C. § 103(a).

5. Whether or not claim 15 is patentable over Read and Swain, as applied to claim 11, and further in view of Van Breen, under 35 U.S.C. § 103(a).

6. Whether or not claim 16 is patentable over Read and Swain, as applied to claim 11, and further in view of Rauh and Japanese Publication No. 07-034759 to Sano et al. (hereinafter "Sano"), under 35 U.S.C. § 103(a).

For at least the reasons set forth in Section VIII below, Appellants respectfully submit that claims 1, 4-5 and 8-16 are patentable over the applied combinations.

VII. GROUPING OF CLAIMS

Issue 1: claims 1 and 4 stand or fall together.

Issue 2: claims 5 and 10 stand or fall together.

Issue 3: claims 8 and 9 stand or fall together.

Issue 4: claims 11-14 stand or fall together.

VIII. ARGUMENTS

1. Claims 1 And 4 Are Patentable Over Swain In View Of Van Breen

A. Claim 1

Claim 1, which is an independent claim, is directed to a method of transferring a roll. In particular, claim 1 recites that a roll is transferred from a roll retainer shaft onto a roll loading shaft.

Claim 1 recites, *inter alia*, that “a mechanism associated with said roll retainer shaft is actuated by a rotating action of a mechanism associated with said roll loading shaft to move said rolls along said roll retainer shaft.” In this manner, a roll supply carriage does not require a special drive mechanism and can instead be actuated from an apparatus to which the rolls are to be transferred (*see* Appellants' specification: page 2, lines 18-24).

The Examiner acknowledges that Swain fails to teach or suggest moving the rolls by rotation of said roll loading shaft. However, the Examiner alleges that Van Breen makes up for these deficiencies of Swain by teaching the movement of a plurality of rigid discs along a shaft by rotation of a ball screw located in the shaft (*see* Van Breen: Fig. 1). Then, without support, the Examiner jumps to the conclusion that it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the roll moving methods taught by Swain with the methods taught by Van Breen in order to move the rolls without needing a separate handler, thereby simplifying the system by doing away with the secondary handling device (*see* Office Action: page 4).

Swain merely describes that a button at the end of a mandrel assembly 10 can be depressed and twisted to lock or unlock a shaft 16 from a "load" position (Swain: col. 5, lines 27-29). This locking/unlocking of shaft 16 does not cause the rolls to move along the loading mandrel 110. Thus, the Examiner correctly acknowledges that Swain fails to teach or suggest that "a mechanism associated with said roll retainer shaft is actuated by a rotating action of a mechanism associated with said roll loading shaft to move said rolls along said roll retainer shaft", as recited in claim 1.

The Examiner, however, incorrectly alleges that Van Breen makes up for these deficiencies of Swain by teaching moving a plurality of rigid discs along a shaft by rotation of a ball screw located in the shaft (*see* Office Action: page 4). To the contrary, the apparatus/method of Van Breen involves a single shaft, *i.e.*, hollow cylindrical member 12 (Van Breen: Fig. 1). Thus, Van Breen relates to the stacking/unstacking of discs on a single shaft (*see* Van Breen: Abstract) and not to the transferring of discs from one shaft to another shaft. Consequently, the Examiner fails to provide any reasonable suggestion or motivation from the references themselves or the knowledge that was generally available to one of ordinary skill in the art, and without impermissible hindsight, for combining Swain and Van Breen in the manner proposed.

Furthermore, in Van Breen, a motor 54 is connected to a lead screw 48 within the shaft 12 in order to rotate the lead screw, wherein the motor is actuated by a sensor detecting the presence or absence of a disc to thereby cause the discs to move upwardly or downwardly depending on the position of a toggle switch 70 (Van Breen: col. 3, lines 3-65). Thus, Van Breen

fails to make up for the deficiencies of Swain because Van Breen also fails to teach or suggest “a mechanism associated with said roll retainer shaft is actuated by a rotating action of a mechanism associated with said roll loading shaft to move said rolls along said roll retainer shaft”, as recited in claim 1. Indeed, the use of a dedicated motor 54 to move rolls up/down a single shaft, *i.e.*, cylinder 12, within the disc stacking device 10, as disclosed in Van Breen, does not correspond to a mechanism of a first shaft being actuated by rotation of a mechanism of a second shaft, causing rolls to move along the first shaft and be transferred onto the second shaft.

In view of the above, claim 1 is patentable over Swain and Van Breen, either alone or in combination.

B. Claim 4

Claim 4, which is also an independent claim, is directed to an apparatus for transferring a roll held on a roll supply carriage. Claim 4 recites features similar to claim 1 and, thus, is patentable over Swain in view of Van Breen based on a rationale analogous to that set forth above for claim 1, as well as the additional features recited therein.

For example, claim 4 recites, *inter alia*, “transferring means for moving and transferring one of the rolls along said roll retainer shaft onto said roll loading shaft, said transferring means comprising engaging means disposed at an axial center of said roll loading shaft for engaging a ball screw disposed at an axial center of said roll retainer shaft and rotating means for rotating said engaging means of said roll loading shaft thereby to rotate said ball screw of said roll retainer shaft.” The use of a dedicated motor 54 to move rolls up/down a single shaft, *i.e.*, cylinder 12, within the disc stacking device 10, as disclosed in Van Breen, does not correspond

to transferring means including engaging means and rotating means, wherein the engaging means is disposed at a roll loading shaft and engages a ball screw disposed at a roll retainer shaft and wherein the rotating means rotates the engaging means to thereby rotate the ball screw.

2. Claims 5 And 10 Are Patentable Over Swain And Van Breen, And Further In View Of Rauh

Claims 5 and 10 each depend from claim 4. Thus, since Rauh fails to make up for the deficiencies of Swain and Van Breen set forth above for claim 4, claims 5 and 10 are patentable over Swain and Van Breen, and further in view of Rauh, at least by virtue of their dependency.

3. Claims 8 And 9 Are Patentable Over Swain And Van Breen, And Further In View Of Schiltz

Claim 8 depends from claim 4, while claim 9 depends from claim 8. Thus, since Schiltz fails to make up for the deficiencies of Swain and Van Breen set forth above for claim 4, claims 8 and 9 are patentable over Swain and Van Breen, and further in view of Schiltz, at least by virtue of their dependency.

4. Claims 11-14 Are Patentable Over Read In View Of Swain

Claim 11, which is an independent claim, is directed to a roll supply carriage. In particular, claim 11 relates to a roll supply carriage having a moving mechanism for moving a roll along a roll retainer shaft of the roll supply carriage.

Claim 11 recites, *inter alia*, "a moving mechanism for moving said roll along said roll retainer shaft, wherein said moving mechanism is operable to be actuated by a rotating action of a driving mechanism associated with a roll loading shaft toward which said roll is moved."

The Examiner acknowledges that Read does not teach or suggest these features of claim 11. The Examiner, however, incorrectly alleges that Swain makes up for these deficiencies of Read by disclosing a transferring means (not numbered) for moving one of said rolls along said roll retaining shaft (*see* Office Action: page 6, *citing* Read: col. 9, lines 33-40).

To the contrary, Swain merely describes that a substrate 88 can be loaded onto a mandrel 10 either manually or in some similar fashion, such as using a programmed robotic arm (Swain: col. 9, lines 33-41). Nothing in Swain (or Read for that matter) teaches or suggests the recited moving mechanism, which “is operable to be actuated by a rotating action of a driving mechanism associated with a roll loading shaft toward which said roll is moved.”

In view of the above, claim 11 is patentable over Read and Swain, either alone or in combination. Consequently, claims 12-14 are patentable over Read and Swain at least by virtue of their dependency.

5. Claim 15 Is Patentable Over Read And Swain, And Further In View Of Van Breen
Claim 15 depends from claim 11. Since the deficiencies of Read and Swain, as set forth above with respect to claim 11, are not cured by Van Breen, claim 15 is patentable over Read and Swain, and further in view of Van Breen at least by virtue of its dependency.

6. Claim 16 Is Patentable Over Read And Swain, And Further In View Of Rauh and Sano
Claim 16 depends from claim 11. Since the deficiencies of Read and Swain, as set forth above with respect to claim 11, are not cured by Rauh and/or Sano, claim 16 is patentable over Read and Swain, and further in view of Rauh and Sano at least by virtue of its dependency.

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192
U.S. Application No. 09/996,974
Attorney Docket No. Q66892

IX. CONCLUSION

Appellants respectfully request the members of the Board to reverse the rejections of the appealed claims and to find each of the claims allowable as defining subject matter that is patentable over the art of record.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: July 26, 2004

APPENDIX

CLAIMS 1, 4-5 AND 8-16 ON APPEAL:

1. A method of transferring a roll, comprising the steps of:

bringing a roll loading shaft into engagement with a roll retainer shaft which holds a plurality of rolls thereon;

releasing said rolls from being held on said roll retainer shaft;

supporting one of said rolls;

moving and transferring said supported one of the rolls along said roll retainer shaft onto said roll loading shaft; and

fixing said one of the rolls to said roll loading shaft,

wherein a tip end of said roll retainer shaft is pressed by a tip end of said roll loading shaft to release said rolls from being held on said roll retainer shaft under pressing forces, and

wherein a mechanism associated with said roll retainer shaft is actuated by a rotating action of a mechanism associated with said roll loading shaft to move said rolls along said roll retainer shaft.

4. An apparatus for transferring a roll held on a roll supply carriage, comprising:

a roll loading shaft for engaging a roll retainer shaft of said roll supply carriage which holds a plurality of rolls;

releasing means for releasing said rolls from being held on said roll retainer shaft, said releasing means having a pressing member disposed at an axial center of said roll loading shaft for pressing an axial center of said roll retainer shaft to release said rolls from being held on said roll retainer shaft;

transferring means for moving and transferring one of the rolls along said roll retainer shaft onto said roll loading shaft, said transferring means comprising engaging means disposed at an axial center of said roll loading shaft for engaging a ball screw disposed at an axial center of said roll retainer shaft and rotating means for rotating said engaging means of said roll loading shaft thereby to rotate said ball screw of said roll retainer shaft; and

fixing means for fixing said one of the rolls to said roll loading shaft,

wherein said one of the rolls held on said roll retainer shaft is transferred onto said roll loading shaft by a nut which moves upon rotation of said ball screw.

5. An apparatus according to claim 4, further comprising:

a support member mounted on said roll loading shaft for abutting against a side of said one of the rolls thereby to support said one of the rolls; and

support member displacing means for displacing said support member along said roll loading shaft.

8. An apparatus according to claim 4, wherein said engaging means comprises an Oldham's coupling mechanism.

9. An apparatus according to claim 8, wherein said Oldham's coupling mechanism comprises:

a hub rotatable by said rotating means;

a slide element slidable in a direction substantially perpendicular to a rotatable shaft of said hub; and

a sleeve disposed around said hub and said slide element for limiting a range in which said slide element is slidable with respect to said hub,
said slide element engaging said ball screw.

10. An apparatus according to claim 4, wherein said fixing means has a plurality of finger members displaceable toward an outer circumferential surface of said roll loading shaft to hold an inner circumferential surface of said one of the rolls.

11. A roll supply carriage comprising:

a roll retainer shaft for holding a roll thereon;

fixing means disposed on a tip end of said roll retainer shaft for fixing said roll to said roll retainer shaft;

a switching mechanism for selectively holding said roll in a fixed state achieved by said fixing means and releasing said roll from a fixed state achieved by said fixing means; and

a moving mechanism for moving said roll along said roll retainer shaft,

wherein said moving mechanism is operable to be actuated by a rotating action of a driving mechanism associated with a roll loading shaft toward which said roll is moved.

12. A roll supply carriage according to claim 11, wherein said fixing means has finger members displaceable toward an outer circumferential surface of said roll retainer shaft for engaging said roll.

13. A roll supply carriage according to claim 11, wherein said switching mechanism comprises:

a cam for bringing said fixing means selectively into a position to hold said roll and a position to release said roll; and

displacing means for displacing said cam.

14. A roll supply carriage according to claim 13, wherein said displacing means is disposed on a tip end of said roll retainer shaft and movable along said roll retainer shaft thereby to displace said cam.

15. A roll supply carriage according to claim 11, wherein said moving mechanism comprises:

a ball screw disposed at an axial center of said roll retainer shaft; and

a nut threaded over said ball screw,

said roll is moved by being pushed by said nut.

16. A roll supply carriage according to claim 11, wherein said roll is made of a photosensitive material and is accommodated in a light-shielded case having a labyrinth structure and a shutter for loading said roll into and unloading said roll out of said case.